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VIENNA, VA 22183

EXAMINER

ZHOU, YONG

ART UNIT	PAPER NUMBER
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2619

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/788,458	Applicant(s) BEJERANO ET AL.	
	Examiner Yong Zhou	Art Unit 2619	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 December 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-17 rejected under 35 U.S.C. 102(e) as being anticipated by Ayyagari et al. (US Patent Application No. 2005/0169222).

Regarding claims 1, 7 and 13, Ayyagari et al. teach a method and system for coordinating ([0017], line 2) transmissions of access points in a wireless local area network (IEEE 802.11, [0032], line 3) comprising the steps of:

estimating a number of slots ([0025], right col., lines 2-3, and [0071], line 2, wherein the AP determines what segments of time are available) for each access point associated with a contention free period (CFP) (Figs. 2, 4, 6, [0021], lines 6-7, and [0023], lines 1-4, wherein the Beacon region and Contention Free Period are part of the beacon cycle and the Contention Free Period is divided into two slots of 6ms each; The transmission of the authorized AP in the Contention Free Period is contention free; the Beacon data transmission must also be free of collision, the slots of the beacon region are part of the entire contention free period in the beacon cycle. Note that the Beacon

Cycle is equivalent to the Contention Free Repetition Interval disclosed in the applicant's co-pending patent application 10/788,460);

generating estimated slot sequences, slot assignments ([0077], lines 1-2, and [0094], lines 6-8), and a transmission frequency ([0016], lines 1-3, and [0076], lines 1-2, wherein choosing a Network ID (NID) not shown in any of the Interfering Network Lists (INL) of other BSSs implies choosing a different transmission frequency for the new BSS) for each access point based on the estimated number of slots and an interference graph (Fig. 1) associated with every access point (QoSC in a BSS, [0037], lines 4-5);

determining a total number of slots used in the estimated slot assignments ([0077], lines 1-2; it is inherent that the total number of slots used should be determined and compared with the total number of slots available before choosing a slot for a new AP);

comparing the total number of slots to an available number of slots ([0074], lines 5-6, and [0077], lines 1-2; it is inherent that the total number of slots used should be determined and compared with the total number of slots available before choosing a slot for a new AP);

adjusting a slot-to-user ratio of each access point if the total number of slots does not equal the available number of slots ([0019], lines 9-11, and [0066], lines 2-4); and

assigning each access point a number of slots and a slot sequence based on the estimated slot assignments and slot sequences and assigning each access point a transmission frequency when the total number of slots equals the available number of slots ([0077], lines 1-2, [0094], lines 6-8, and Table 9 wherein interfering BSSs (with the

same or interfering transmission frequencies) are assigned different slots and two non-interfering BSSs F and D are assigned the same slot).

Regarding claims 2, 8 and 14, Ayyagari et al. further teach that the adjustment step further comprises the steps of:

increasing the slot-to-user ratio of each access point when the total number of slots is less than the available number of slots ([0019], lines 9-11) and

decreasing the slot-to-user ratio of each access point when the total number of slots is greater than the available number of slots ([0019], lines 9-11, and [0103], lines 5-8 wherein the bandwidth release procedure can be used to re-allocate the bandwidth).

Regarding claims 3, 9 and 15, Ayyagari et al. further teach the steps of:

estimating a next number of slots for each access point based on each access point's adjusted slot-to-user ratio ([0066], lines 2-4); and

generating next, estimated slot sequences, slot assignments ([0077], lines 1-2, and SlotID, Table 6) and a transmission frequency ([0016], lines 1-3 , and [0076], lines 1-2) for each access point based on the next number of slots and the interference graph.

Regarding claims 4, 10 and 16, Ayyagari et al. further teach that the generation step further comprises generating the estimated slot sequences, slot assignments and frequencies such that no two interfering access points are assigned the same transmission frequency during a given slot ([0076], lines 1-2) and such that a total number of assigned slots is minimized ([0078], lines 1-2, choosing 1 slot minimizes the total)

Regarding claims 5, 11 and 17, Ayyagari et al. further teach the step of adjusting the slot-to-user ratio of each access point until said ratios substantially equal a maximum, lower bound of all of the slot-to-user ratios ([0019], lines 9-11, and [0066], lines 2-4).

Regarding claims 6 and 12, Ayyagari et al. further teach that the method comprises a 4-approximation technique ([0017] line 14, and [0076], lines 1-2, wherein choosing a Network ID (NID) not shown in any of the Interfering Network Lists (INL) of other BSSs implies choosing a different transmission frequency for the new BSS).

Response to Arguments

3. Applicant's arguments filed December 27, 2007 have been fully considered but they are not persuasive.

In Applicant's response, Applicant argues that the beacon data in a beacon region disclosed in Ayyagari is not pertinent to the claims. The Examiner respectfully disagrees with Applicant's arguments. Ayyagari teaches both the beacon region and Contention Free Period (see Figs. 2, 4, 6, [0021] and [0023]). They are part of the beacon cycle and the Contention Free Period is divided into two slots of 6ms each. The transmission of the authorized AP in the Contention Free Period is contention free; the Beacon data transmission must also be free of collision, the slots of the beacon region are part of the entire contention free period in the beacon cycle. Note that the Beacon Cycle is equivalent to the Contention Free Repetition Interval disclosed in the applicant's co-pending patent application 10/788,460.

Applicant argues that Ayyagari is completely silent with respect to the use of slot-to-ratios. The Examiner respectfully disagrees. Although exactly the same wording is not used, Ayyagari teaches that adjusting bandwidth in favor of other AP's request for additional bandwidth (see [0019]), it is equivalent to adjusting its slot-to-user ratio.

Applicant argues that Ayyagari does not disclose the assignment step. The Examiner respectfully disagrees. Ayyagari does disclose that interfering BSSs (with the same or interfering transmission frequencies) are assigned different slots and two non-interfering BSSs F and D are assigned the same slot (see [0077], [0094], and Table 9) and an AP can request for a Contention Free Period of duration of 3ms.

Therefore, in view of the above reasons, the Examiner maintains the rejections.

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Art Unit: 2619

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yong Zhou whose telephone number is (571)270-3451. The examiner can normally be reached on Monday - Friday 8:00am - 5:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chirag G. Shah can be reached on (571) 272-3144. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Yong Zhou

February 26, 2008

/Chirag G Shah/

Supervisory Patent Examiner, Art Unit 2619